



City of Cleveland
Justin M. Bibb, Mayor

Department of Finance
Division of Purchases & Supplies
601 Lakeside Avenue, Room 128
Cleveland, Ohio 44114-1080
216/664-2620 • Fax: 216/664-2177
www.cleveland-oh.gov

February 7, 2023

ADDENDUM 2

BID TITLE: File No. 1-23 Cathodic Protection Maintenance

BID DUE: Wednesday, February 15, 2023 at 12 o'clock noon (Eastern Time)

Attention Bidders:

We have been requested to issue the addendum for the following:

1. Notify bidders of the new bid opening date and last day for questions.
2. Release a copy of the Plan Holders List.
3. Release a copy of the revised Bid – Schedule of Items.
4. Answers to questions received.

Please ensure that a copy of this addendum is included and returned with the bid specifications furnished to you by this office, as it will have the same force and effect as if it were part of the specifications originally issued.

If you have any questions regarding the attached, please contact Simon Mastroianni at 216-664-2444, extension 75630. Thank you for your prompt attention and assistance in this matter.

Signature of Potential Bidder & Name of Company

Today's Date

Thank you,

Donia Patterson, Assistant Administrator
Purchases & Supplies

CC:
Attachments

**CITY OF CLEVELAND, OHIO
DEPARTMENT OF PUBLIC UTILITIES
CATHODIC PROTECTION MAINTENANCE
FILE NO. 1-23**

ADDENDUM NO. 2

The bid due date has changed to, Wednesday, February 15, 2023, before 12:00 p.m. and must be date stamped. The last day for questions is, Tuesday February 7, 2023, by 12:00 p.m.

A copy of the Plan Holders List is included.

Changes have been applied to the Bid – Schedule of Items. A new version is included.

Answers to questions received:

1. Would it be possible to obtain drawings for these projects?

Answer: There are no drawings associated with File 1-23. The contract will be for maintenance only.

2. Line item #58, "Soil testing per design manual," is the design manual available so that I can forward it on to our estimating department?

Answer: The Design Manual is not currently ready for distribution. However, each soil test would include the following criteria using the specified standard:

- (1) Soil Resistivity (ASTM G57, ASTM G187 *or Engineer Approved Equal*)
 - (a) Soil borings shall be collected nearest the proposed pipe depth.
- (2) pH (ASTM G51 *or Engineer Approved Equal*)
 - (a) Measurements shall be collected by jar sampling nearest the proposed pipe depth.
- (3) Redox Potential (ASTM D1498, G200, *or Engineer Approved Equal*)
 - (a) Measurements shall be collected by jar sampling nearest the proposed pipe depth.
- (4) Chloride Content (ASTM D1253 *or Engineer Approved Equal*)
 - (a) Water soluble chloride content shall be determined by chloride ion extraction using acceptable industry methodology prior to testing.
- (5) Sulfide Content (ASTM D4658 *or Engineer Approved Equal*)
 - (a) Water soluble sulfide content shall be determined by sulfide ion extraction using acceptable industry methodology prior to testing.
- (6) Moisture Content (ASTM D2216 *or Engineer Approved Equal*)
 - (a) Measurements shall be collected by jar sampling nearest the proposed pipe depth.

**CITY OF CLEVELAND, OHIO
DEPARTMENT OF PUBLIC UTILITIES
CATHODIC PROTECTION MAINTENANCE
FILE NO. 1-23**

ADDENDUM NO. 2

(7) Pipe Location

- (a) The water table depth shall be determined via soil boring using acceptable industry methodology and per the equipment manufacturer's instructions. Provide Cleveland Water with the methodology used.

3. In order to provide pricing for the proposed bid items a formal description of the item would be required. For example, we would need to know the location of the bid item, the installation requirements pipeline depth, surface condition (i.e. asphalt cover, concrete cover, earth cover), easement location, access ability, traffic control, permit requirements, etc.

Answer: Please see reference specifications from SOI.

4. The authorizing ordinance section 2 states that 28 miles of the cathodic protection system has been assessed for repair. If that is the case is this the basis for this contract?

Answer: The assessment is for the complete rehabilitation of the transmission main CP system, which is not the intent of this contract.

5. If so, we would ask that the assessment should be included with this bid and all required documentation regarding the construction should also be included.

Answer: The assessment does not apply, see answer above.

6. If this is to be a design build project it should be advertised as such.

Answer: This is not a design build project, it is a replace in kind project.

7. In order to properly prepare a bid, additional information needs to be furnished for several bid items. Attached is the list of questions for the materials specified that need further detail.

Answer: See attached list with answers. We have also attached standard details and a sample design.

Addendum No. 2 - File No. 1-23

Bid Item	
01-02	<p>There are a number of variables involved in installing items 01 thru 13 that need to be addressed</p> <p>Flush test stations are installed in paved areas. Contractor is responsible for restoration based on the area the contractor disturbs.</p> <p>Surface area and location</p> <p>Pipe depth, traffic control, permits, etc. Pipe depth for all CWD pipes is 6 feet. Traffic control and permits are municipality dependent.</p>
03-13 & 21	<p>Type of test station</p> <ol style="list-style-type: none"> 1. Standard - Define Standard Please see each spec section for the approved manufacturer 2. Bonding - Define wiring See page 13 47 13.13 page 5, "Wire/conductors" 3. Anode - Quantity Two 4. CWD - Blue or Purple Majority of test stations will require blue lid, however few situations will require purple. 5. Traffic area This can vary from a tertiary street to a primary road. 6. Foreign pipe Typically gas or RTA. 7. Casing Steel casing pipe. 8. Reference electrode Reference electrode shall be Copper-Copper Sulfate 9. Coupon Pipe segment.
22	<ol style="list-style-type: none"> 1. Lead wire size & length See 13 47 13.14, page 6, "Anode lead wires." 2. Size and or weight Anode weight shall be sufficient to meet 20 year design life.
23	<ol style="list-style-type: none"> 1. Anode length Anode weight shall be sufficient to meet 20 year design life. 2. Lead wire size and length See 13 47 13.14, page 6, "Anode lead wires."
24	<ol style="list-style-type: none"> 1. Anode length Anode weight shall be sufficient to meet 20 year design life. 2. Lead wire size and length See 13 47 13.14, page 6, "Anode lead wires."
38	<ol style="list-style-type: none"> 1. Lead wire length See 13 47 13.14, page 6, "Anode lead wires."
07	<ol style="list-style-type: none"> 1. NEMA Rating NEMA Rating shall be 3R. 2. Size See standard detail CP-DA03. 3. Number of terminals See standard detail CP-DA03. 4. Size and type of shunts See 13 47 13.14, page 7, "Anode junction box"
08	<ol style="list-style-type: none"> 1. Rating Volts/Amps See 13 47 13.13, page 8, "Rectifiers"
09-12	<ol style="list-style-type: none"> 1. Anode weight See previous answers. 2. Lead wire size and length See previous answers. 3. Pipe depth See previous answers. 4. Number of anodes at each location One 5. Site location and type <ol style="list-style-type: none"> 1. Easily reached Yes 2. Dirt excavation Yes 3. Pavement required removal & replacement Yes 4. Traffic Control Yes 5. Restricted access or off hours No

Addendum No. 2 - File No. 1-23

14-19 , 29-31	This is a designed system for which components depend on size and type of tank is being protected. There would be no way to prepare pricing for these items unless a sample design is included See attached.
25-27,29-30	Need wire length and anode size See previous answers.
28	Need better description Remove item from SOI.
29 - 35	This is another designed system that would require an engineered design of the materials and installation See attached.
36- 42	This is another designed system that would require an engineered design of the materials and installation See attached.
44-55	Need length of wires 500 feet.
-	
58	Is this a requirement for testing 30 sites or 30 samples? If 30 sites please define how many tests per site. 30 samples. See addendum 1 for each sample criteria.

Please contact us if you need further explanation of any of the above comments.



Thursday, February 9, 2023

FILE NO. 1-23

Catholic Protection

Maintenance

Division of Purchases & Supplies

Bidder/Plan Holders' List



Bid Opening Date: _____

Page #: 1

Title o _____

File N _____

Addendum	Addendum	Addendum	Addendum	Addendum
Issued :	1	2	3	4
Date:				

Bid Date Extended:	
Bid Postponed Date:	
Bid Cancellation Date:	

Name of Firm Business Address & Zip Code	Telephone/Fax #'s	E-mail Address	Date Plans Issued	Date Plans Returned
BOCIBERS E/L	671-8605	B2 a B2 Chr	1/6	
Universal Technical Resource Services	610-609-0263		1/9	
Cathtect USA	772-646-2873			
POND-P COMPANY 3500 Parkway Lane. Rock Tree Corners, Ste 500	678-292-1110		1/18	
Region Clay Eddings	440-462-9115		1/18	



Thursday, February 9, 2023
FILE NO. 1-23
Catholic Protection
Maintenance

Division of Purchases & Supplies
Bidder/Plan Holders' List



Bid Opening Date: _____
Page #: 2

File #

Addendum	Addendum	Addendum	Addendum	Addendum
Issued :	1	2	3	4
Date:				

Bid Date Extended:	
Bid Postponed Date:	
Bid Cancellation Date:	

Business Address & Zip Code	Telephone/Fax #'s	E-mail Address	Date Plans Issued	Date Plans Returned
Piping and Connection specialties	410-544-3232		1/18	
Corpro	440-482-9115	LEDONIS@Keston.com	1/20	
Corpro Companies	330-241-6688 Meding, OH.		1/31	

CITY OF CLEVELAND/DEPARTMENT OF PUBLIC UTILITIES
PUBLIC IMPROVEMENT BY REQUIREMENT
CATHODIC PROTECTION MAINTENANCE
ADDENDUM NO. 2 - BID - SCHEDULE OF ITEMS - FILE NO. 1-23

BID ITEM	ITEM DESCRIPTION	UNIT	QUANTITY		MATERIAL	LABOR	TOTAL	EXT. TOTAL
			Q		M	L	M+L=T	Q x T
01	INSTALL POLE MOUNT TEST STATIONS COMPLETE PER 13 47 13.13	EA	10					
02	INSTALL FLUSH TEST STATION COMPLETE PER 13 47 13.13	EA	10					
03	INSTALL HIGH SILICON CAST IRON ANODES COMPLETE PER 13 47 13.13	EA	20					
04	INSTALL MIXED METAL OXIDE (MMO) ANODES COMPLETE PER 13 47 13.13	EA	20					
05	INSTALL LINEAR ANODES COMPLETE PER 13 47 13.13	EA	5					
06	INSTALL REFERENCE ELECTRODES COMPLETE PER 13 47 13.13	EA	10					
07	INSTALL ANODE JUNCTION BOXES COMPLETE PER 13 47 13.13	EA	10					
08	INSTALL RECTIFIERS COMPLETE PER 13 47 13.13	EA	5					
09	INSTALL MAGNESIUM ANODES COMPLETE PER 13 47 13.14	EA	10					
10	INSTALL ZINC ANODES COMPLETE PER 13 47 13.14	EA	20					
11	INSTALL PACKAGED ANODES COMPLETE PER 13 47 13.14	EA	20					
12	INSTALL LEAD WIRES COMPLETE PER 13 47 13.14	EA	5					
13	INSTALL FLUSH-CURB-BOX TYPE TEST STATION COMPLETE PER 13 47 13.14	EA	30					

Bidder's Name: _____

Bidder's Signature: _____

Date: _____

Bids shall be handwritten with ink. Do not type.

CITY OF CLEVELAND/DEPARTMENT OF PUBLIC UTILITIES
PUBLIC IMPROVEMENT BY REQUIREMENT
CATHODIC PROTECTION MAINTENANCE
ADDENDUM NO. 2 - BID - SCHEDULE OF ITEMS - FILE NO. 1-23

BID ITEM	ITEM DESCRIPTION	UNIT	QUANTITY	MATERIAL	LABOR	TOTAL	EXT. TOTAL
			Q				
14	INSTALL RECTIFIER COMPLETE PER 13 47 13.16	EA	5				
15	INSTALL WEATHERPROOF CABINET COMPLETE PER 13 47 13.16	EA	5				
16	INSTALL PRESSURE ENTRANCE FITTING COMPLETE PER 13 47 13.16	EA	5				
17	INSTALL PLATINIZED NIOBIUM WIRE ANODE COMPLETE PER 13 47 13.16	EA	20				
18	INSTALL REFERENCE ELECTRODES COMPLETE PER 13 47 13.16	EA	5				
19	INSTALL REMOTE MONITORING UNIT COMPLETE PER 13 47 13.16	EA	5				
20	INSTALL ANODE CENTRALIZING DEVICE COMPLETE PER 13 47 13.50	EA	2				
21	POLE MOUNT TEST STATION	EA	25				
22	HIGH SILICON CAST IRON ANODE	EA	10				
23	MIXED METAL OXIDE (MMO) ANODE	EA	10				
24	LINEAR ANODE	EA	10				
25	MAGNESIUM ANODE	EA	25				
26	MAGNESIUM HIGH POTENTIAL TYPE ANODE	EA	25				

Bidder's Name: _____

Bidder's Signature: _____

Date: _____

Bids shall be handwritten with ink. Do not type.

CITY OF CLEVELAND/DEPARTMENT OF PUBLIC UTILITIES
PUBLIC IMPROVEMENT BY REQUIREMENT
CATHODIC PROTECTION MAINTENANCE
ADDENDUM NO. 2 - BID - SCHEDULE OF ITEMS - FILE NO. 1-23

BID ITEM	ITEM DESCRIPTION	UNIT	QUANTITY	MATERIAL M	LABOR L	TOTAL M+L=T	EXT. TOTAL Q x T
			Q				
27	ZINC ANODE	EA	25				
28	PLATINIZED NIOBIUM WIRE ANODE	EA	10				
29	ANODE LEADS	EA	25				
30	ANODE ROPE SUPPORT	EA	5				
31	ANODE VENT PIPE	EA	5				
32	ANODE CENTRALIZING DEVICE	EA	5				
33	ANODE JUNCTION BOXES	EA	25				
34	POWER CABLE	EA	25				
35	HARD SHELL ROPE FLOAT	EA	5				
36	REMOTE MONITORING UNIT (RMU)	EA	5				
37	REFERENCE ELECTRODES	EA	10				
38	SOLID STATE DECOUPLER	EA	25				
39	RECTIFIER	EA	10				

Bidder's Name: _____

Bidder's Signature: _____

Date: _____

Bids shall be handwritten with ink. Do not type.

CITY OF CLEVELAND/DEPARTMENT OF PUBLIC UTILITIES
PUBLIC IMPROVEMENT BY REQUIREMENT
CATHODIC PROTECTION MAINTENANCE
ADDENDUM NO. 2 - BID - SCHEDULE OF ITEMS - FILE NO. 1-23

BID ITEM	ITEM DESCRIPTION	UNIT	QUANTITY	MATERIAL	LABOR	TOTAL M+L=T	EXT. TOTAL Q x T
			Q				
40	WEATHERPROOF CABINET	EA	10				
41	PRESSURE ENTRANCE FITTING	EA	10				
42	PLASTIC WARNING TAPE	FT	10,000				
43	WHEEL OF WIRE: NO. 10 AWG STRANDED RHH BLUE INSULATION	EA	2				
44	WHEEL OF WIRE (500'): NO. 10 AWG STRANDED RHH WHITE INSULATION	EA	2				
45	WHEEL OF WIRE (500'): NO. 10 AWG STRANDED RHH RED INSULATION	EA	2				
46	WHEEL OF WIRE (500'): NO. 10 AWH RHH ORANGE	EA	2				
47	WHEEL OF WIRE (500'): REFERENCE # 14 AWH STRANDED RHH BLUE	EA	2				
48	WHEEL OF WIRE (500'): #22 AWG STRANDED RHH RED	EA	2				
49	WHEEL OF WIRE (500'): #22 AWH STRANDED RHH BLACK	EA	2				
50	WHEEL OF WIRE (500'): MINIMUM #10 AWH STRANDED COPPER WITH RED INSULATION TYPE XLPE, RHH	EA	2				
51	WHEEL OF WIRE (500'): #14 AWH STRANDED COPPER WITH YELLOW RHH INSULATION	EA	2				
52	WHEEL OF WIRE (500'): #12 AWG STRANDED COPPER WITH BLACK THHN INSULATION	EA	2				

Bidder's Name: _____

Bidder's Signature: _____

Date: _____

Bids shall be handwritten with ink. Do not type.

CITY OF CLEVELAND/DEPARTMENT OF PUBLIC UTILITIES
PUBLIC IMPROVEMENT BY REQUIREMENT
CATHODIC PROTECTION MAINTENANCE
ADDENDUM NO. 2 - BID - SCHEDULE OF ITEMS - FILE NO. 1-23

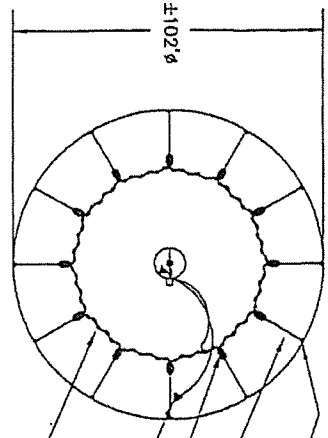
BID ITEM	ITEM DESCRIPTION	UNIT	QUANTITY	MATERIAL	LABOR	TOTAL	EXT. TOTAL
			Q		L	M+L=T	Q x T
53	WHEEL OF WIRE (500'); #12 AWG STRANDED COPPER WITH BLUE THHN INSULATION	EA	2				
54	WHEEL OF WIRE (500'); #12 AWG STRANDED COPPER WITH GREEN THHN INSULATION	EA	2				
55	TESTING BY CP2 FOR FOUR HOURS	EA	10				
56	RECORD DOCUMENTS - AS-BUILT DRAWINGS	EA	20				
57	SOIL TESTING PER DESIGN MANUAL	EA	30				
Unofficial Total Bid Amount (Bid Price Items 1-57, Page 1 through Page 5):							
Contingency Allowance (10 percent of Unofficial Total Bid Amount):							
Total Bid Amount (Including Contingency Allowance):							
The contract term is for 365 days after Notice to Proceed							

Bidder's Name: _____

Bidder's Signature: _____

Date: _____

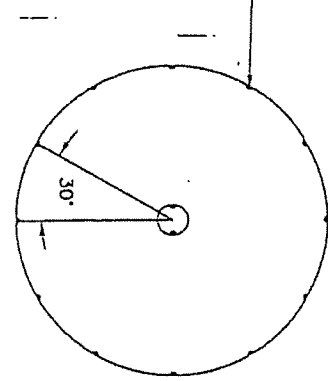
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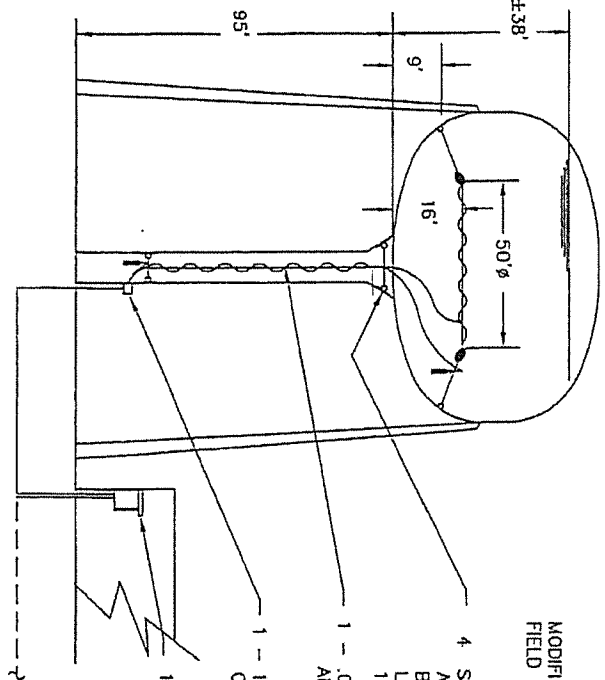
SYSTEM LAYOUT

- 12 - STEEL ANCHORS WELDED TO TANK SIDE WALLS EVERY 30" ± 6", 9" ABOVE LWL
- 12 - 5/16" POLYESTER SUPPORT CORDS
- 12 - FLUTATION BUOYS
- 2 - IHRP-801-CT PERMACELLS (ONE IN BOWL AND ONE IN RISER)
- 1 - .062" ϕ MIXED METAL OXIDE ANODE ASSEMBLY

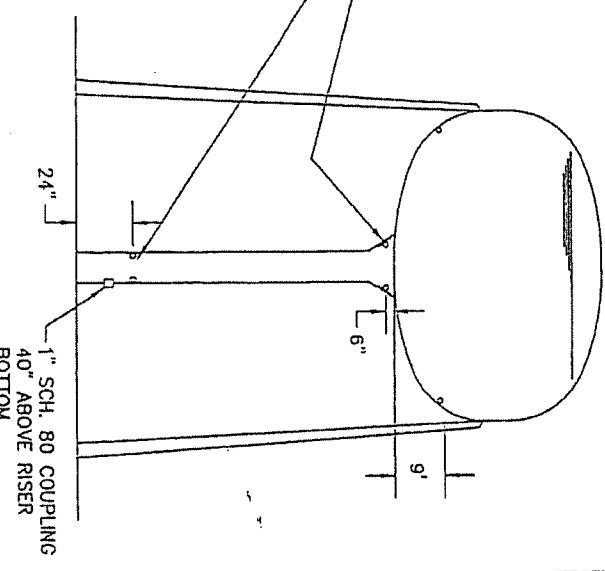
MODIFICATIONS MAY BE MADE TO MEET FIELD CONDITIONS



ANCHOR LOCATION DETAIL

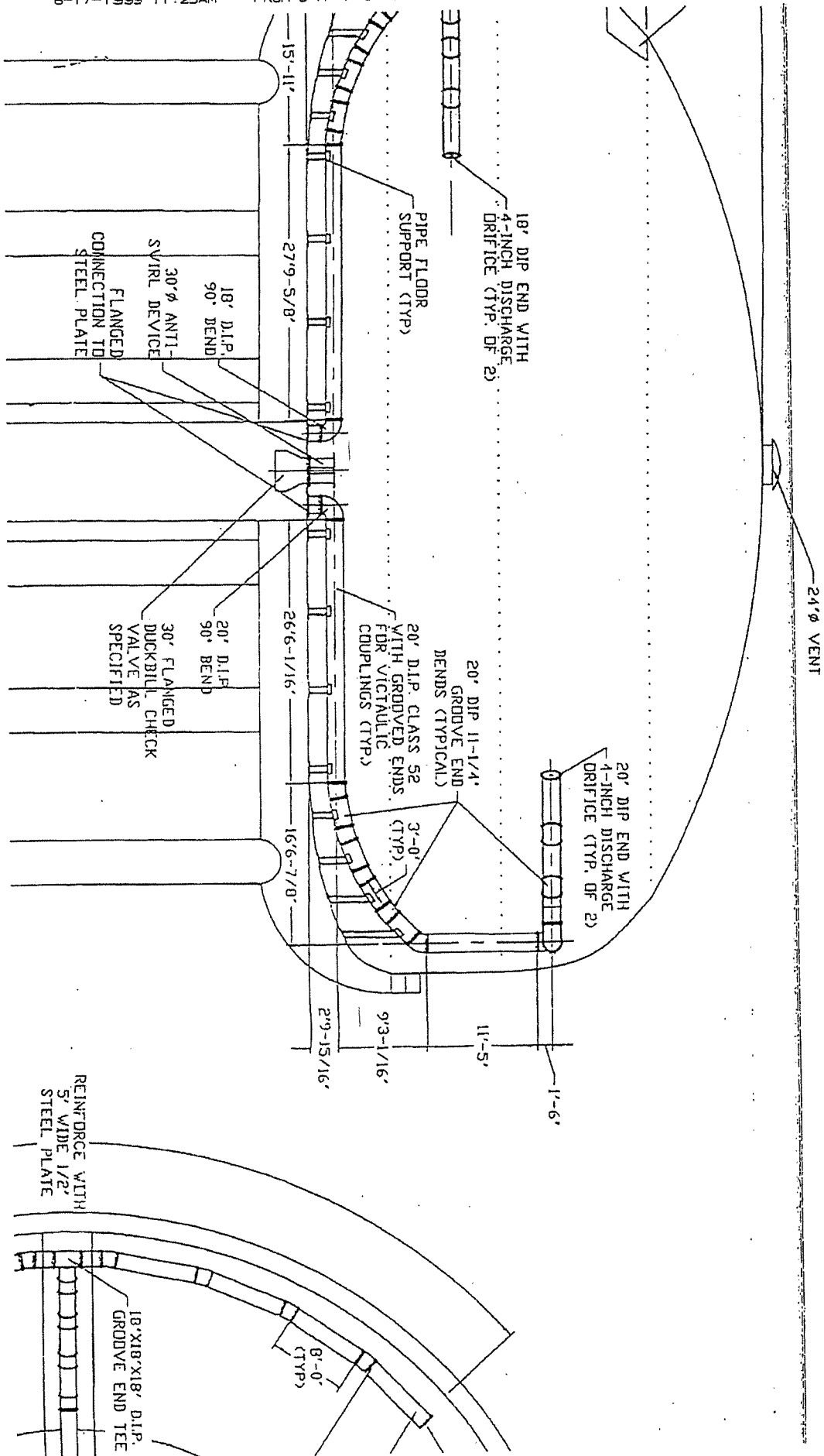


- 4 - STEEL ANCHORS, 2 LOCATED AT TOP OF RISER, 6" DOWN FROM BOWL, 180° APART AND 2 - LOCATED IN BOTTOM OF RISER 180° APART, 24" ABOVE GRADE
- 1 - .062" ϕ MIXED METAL OXIDE RISER ANODE ASSEMBLY
- 1 - 1" ϕ WIRE PRESSURE ENTRANCE COUPLING WELDED IN RISER PIPE.
- 1 - 30 VOL. I, 16 AMP AUTOMATICALLY CONTROLLED RECTIFIER UNIT W/ALARM LIGHTS AND STATUS CONTACTS PER SPECIFICATION RECTIFIER IN PUMP HOUSE BY HARCO



- 1 - 1" SCH. 80 COUPLING 40" ABOVE RISER BOTTOM

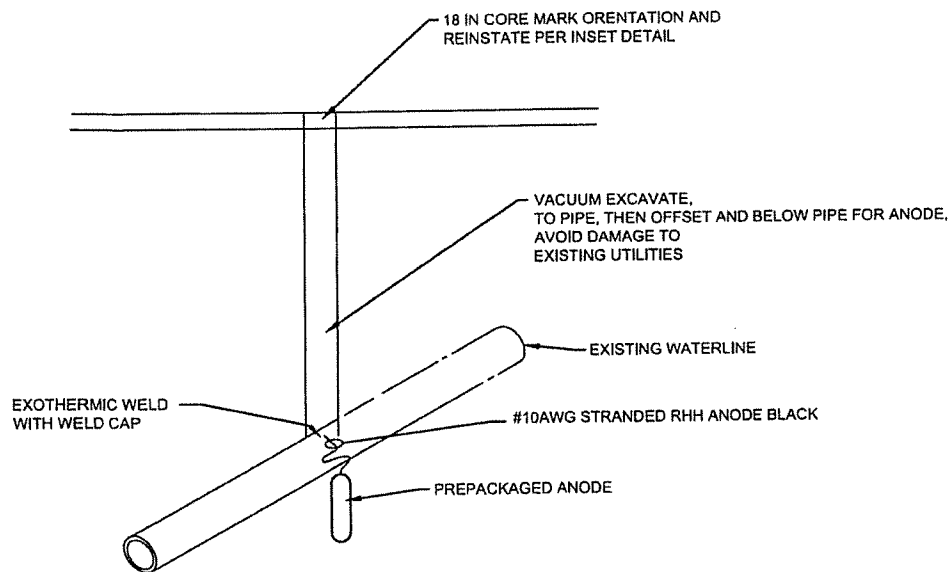
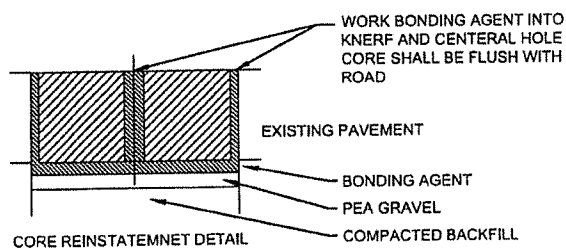
HARCO JOB No. 9905-0251	RECTIFIER DRAWINGS	CITY OF CLEVELAND CLEVELAND, OHIO	CATHODIC PROTECTION SYSTEM	DRAWN BY D.L.J. DESIGNED BY O.J.E. DATE 5/24/99 SCALE NONE SHEET 1 OF 1 DWG. NO. AW-2620
ALL SUBMERGED MATERIALS ARE NSF 61 CERTIFIED			2,000,000 GALLON WATER TANK KINSMAN ROAD TANK	



Addendum No. 2 - File No. 1-23

NOTES:

1. VACUUM EXCAVATE WET OR DRY. ADD 5 GAL WATER TO ANODE FOR DRY.
2. TAMP ALL BACKFILL, PROTECT ANODE, WIRE, ALL UTILITIES FROM DAMAGE.
3. ADD PEA GRAVEL AND DRY FIT CORE, 1/2IN BELOW FIN PAVEMENT.
4. ADD BONDING COMPOUND AND REPLACE CORE, WORK BONDING COMPOUND INTO KERF AND HOLE, TILL CORE IS FLUSH.
5. BRUSH SURFACE WITH DAMP BRUSH.
6. UTILBOND SETS IN 30MIN AT 70F, ADJUST PROCEDURES FOR TEMPERATURES LESS THAN 40F OR GREATER THAN 80F.



RETROFIT KEYHOLE

NOT TO SCALE

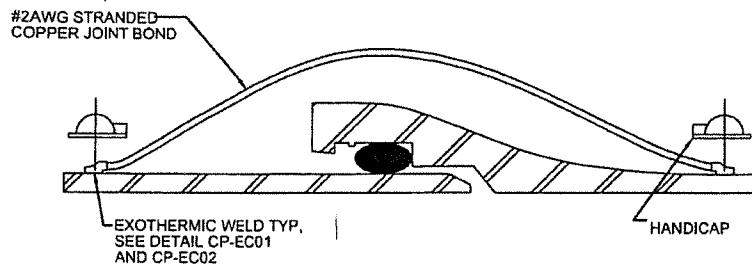
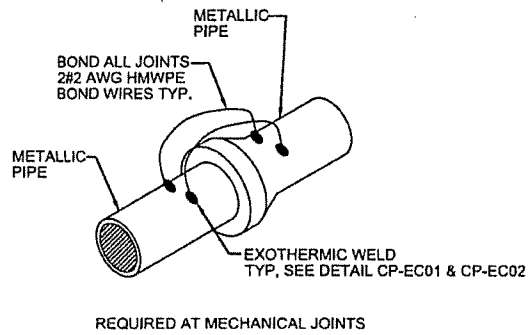
CP-AI01

CORROSION PROTECTION DETAILS
SACRIFICIAL ANODE INSTALLATION

N.T.S.

DATE: 11-19-2019

Addendum No. 2 - File No. 1-23



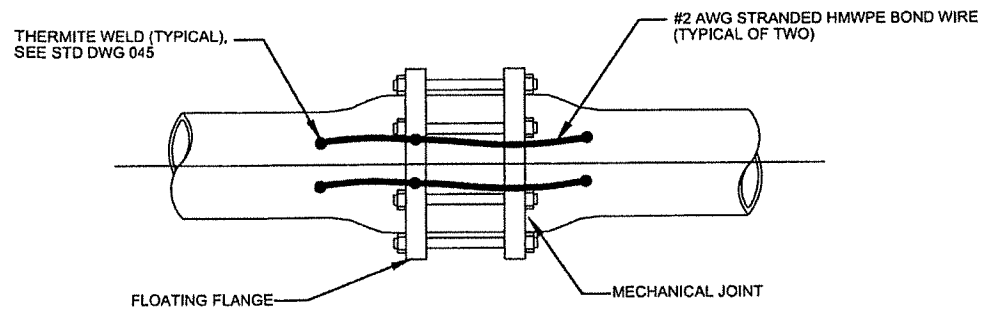
NOTES:

1. PUSH ON JOINT SHOWN, BOND INSTALLATION SIMILAR
2. FOR MECHANICAL OR RESTRAINED PIPE JOINTS.
3. INSTALL 2 BOND WIRES AT EACH JOINT, UNLESS OTHERWISE SPECIFIED
TEST WELDS WITH HAMMER AND REMOVE ANY SLAG PRESENT, THEN COAT
WITH ROYSTON HANDI-CAPS

MECHANICAL/DUCTILE IRON PIPE JOINT BOND
NOT TO SCALE

CP-B01	CORROSION PROTECTION DETAILS BONDING	N.T.S.	DATE: 11-19-2019
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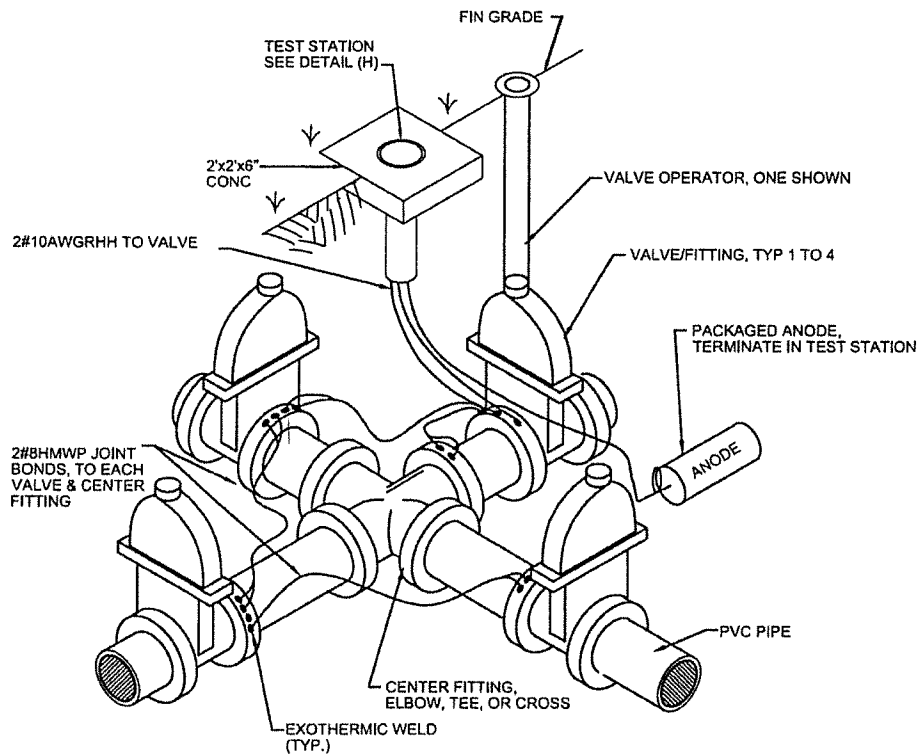
Addendum No. 2 - File No. 1-23



MECHANICAL COUPLING JOINT BOND
NOT TO SCALE

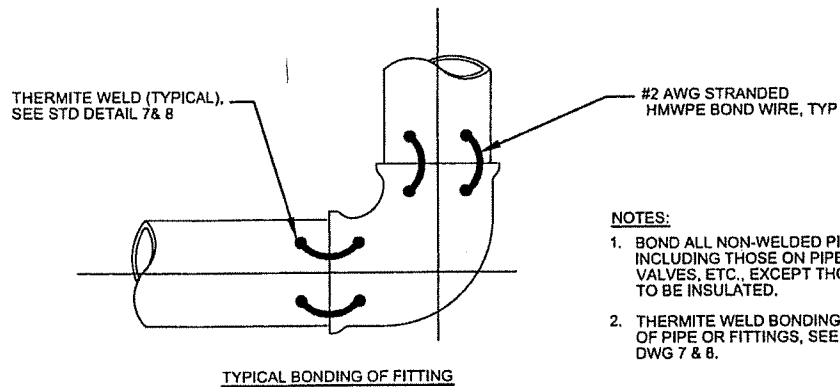
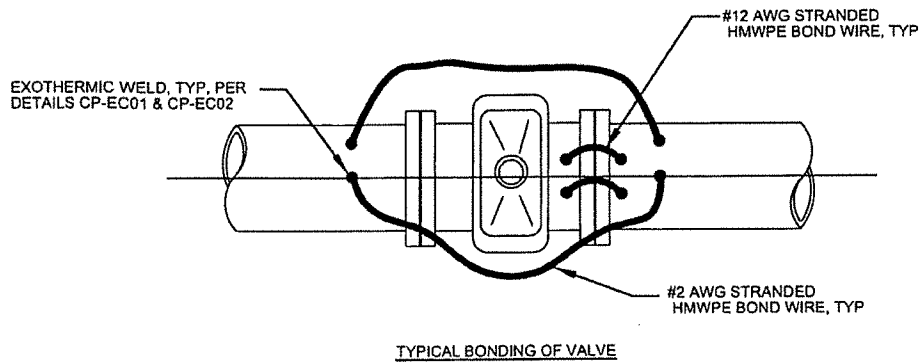
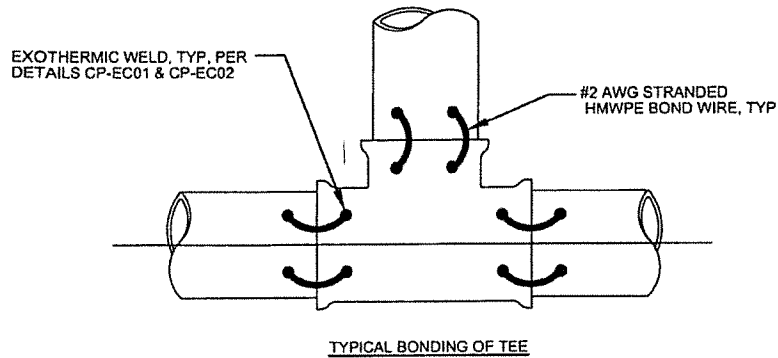
CP-B02	CORROSION PROTECTION DETAILS BONDING	N.T.S.	DATE: 11-19-2019
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Addendum No. 2 - File No. 1-23



BONDING GROUP OF FITTINGS
NOT TO SCALE

Addendum No. 2 - File No. 1-23



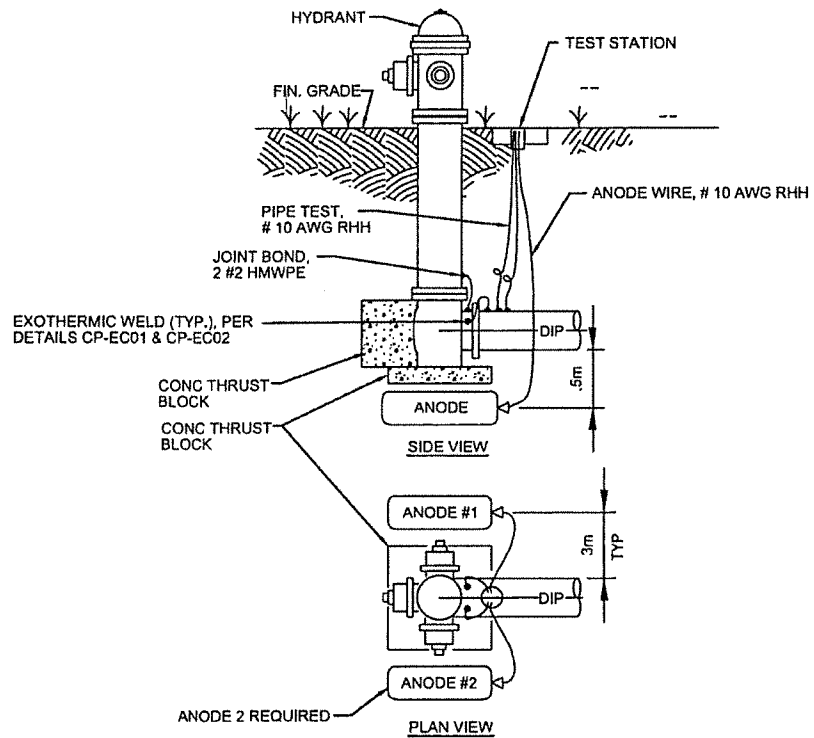
NOTES:

1. BOND ALL NON-WELDED PIPE JOINTS, INCLUDING THOSE ON PIPE, FITTINGS, VALVES, ETC., EXCEPT THOSE SPECIFIED TO BE INSULATED.
2. THERMITE WELD BONDING WIRES TO TOP OF PIPE OR FITTINGS, SEE DETAIL STD DWG 7 & 8.

DUCTILE IRON MECHANICAL JOINT VALVE
NOT TO SCALE

CP-B04	CORROSION PROTECTION DETAILS BONDING	N.T.S.	DATE: 11-19-2019
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Addendum No. 2 - File No. 1-23



NOTES:

1. INSTALL ANODES AS DIRECTED
MAKE JOINT BOND EXOTHERMIC WELDS TO PIPE HORIZONTAL
THEN INSTALL ASSEMBLY

FIRE HYDRANT BONDING
NOT TO SCALE

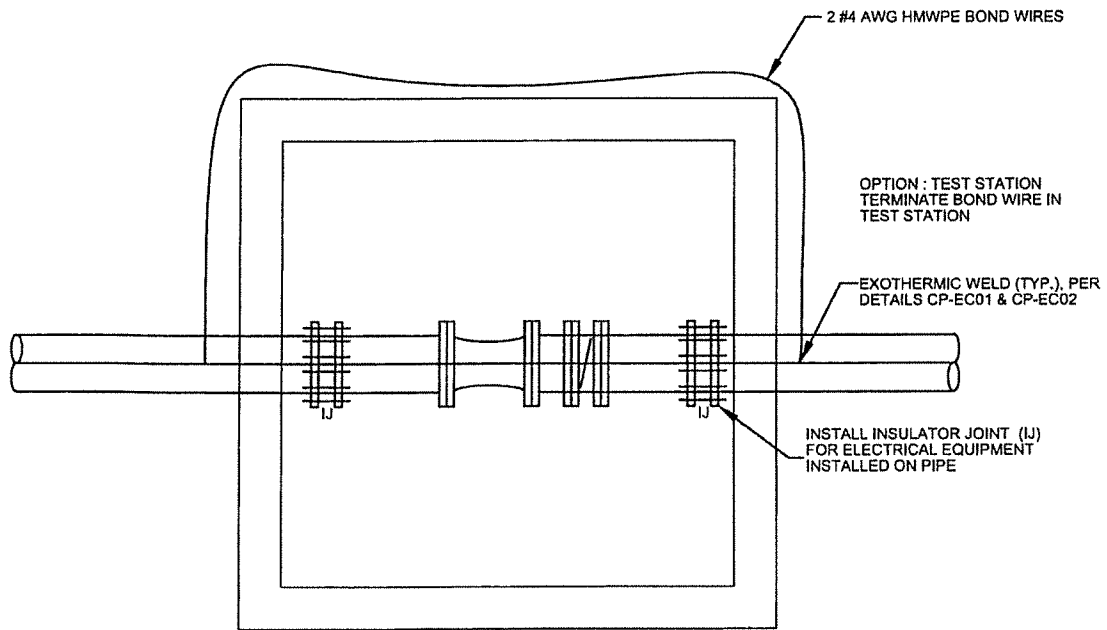
CP-B05

CORROSION PROTECTION DETAILS
BONDING

N.T.S.

DATE: 11-19-2019

Addendum No. 2 - File No. 1-23

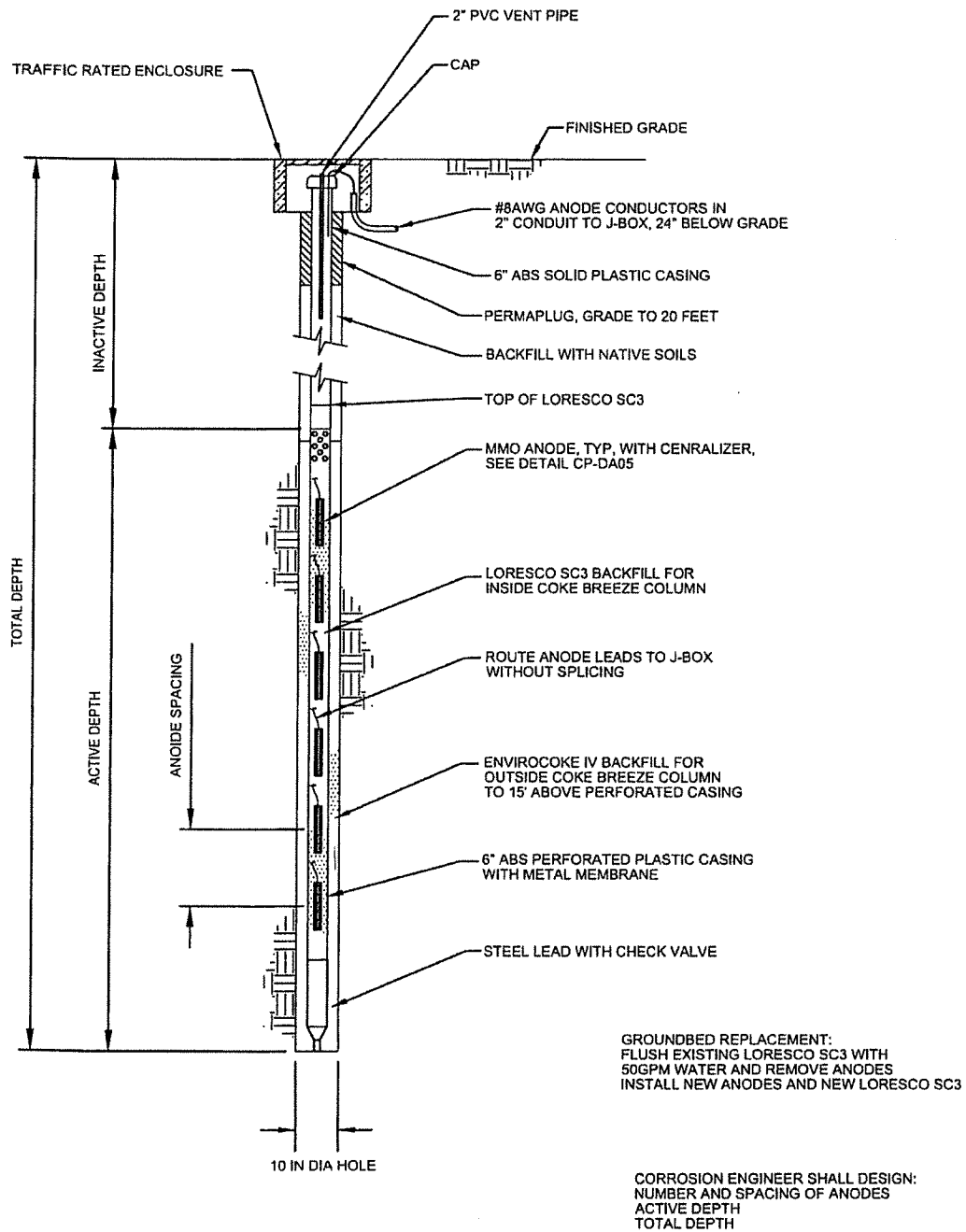


NOTES:

1. ISOLATE PIPE FROM STRUCTURAL
STEEL AT VAULT PENETRATION

VAULT BONDING
NOT TO SCALE

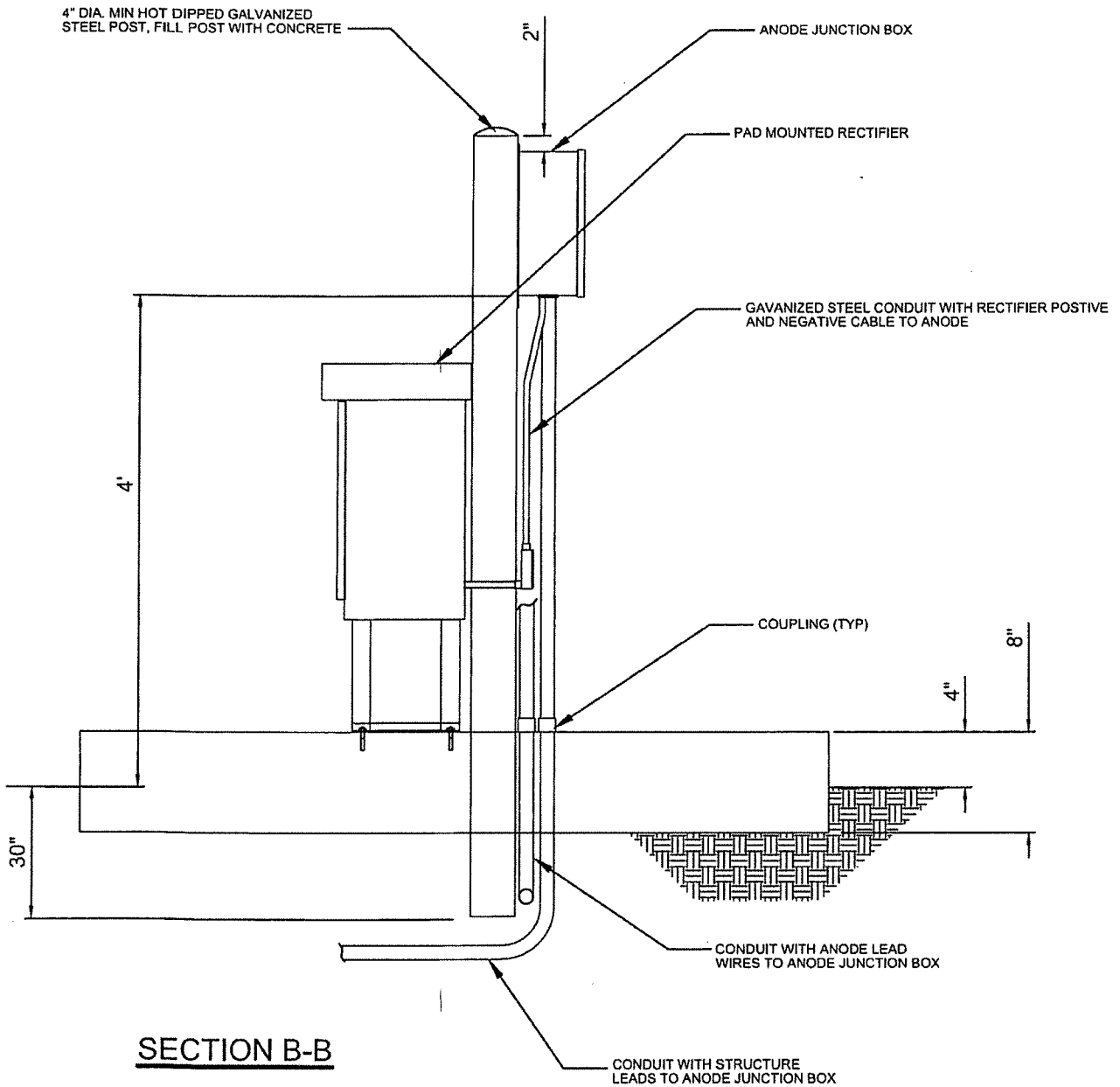
Addendum No. 2 - File No. 1-23



REPLACEABLE DEEP ANODE SYSTEM NOT TO SCALE

CP-DA01	CORROSION PROTECTION DETAILS DEEP ANODE SYSTEMS	N.T.S.	DATE: 11-19-2019
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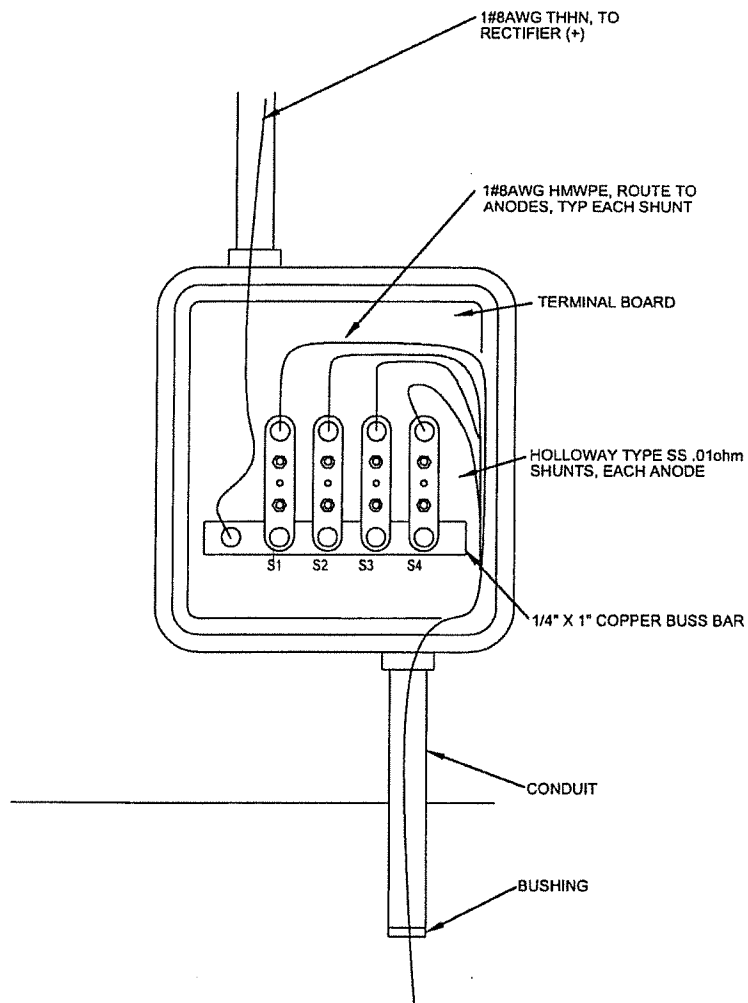
Addendum No. 2 - File No. 1-23



JUNCTION BOX/RECTIFIER MOUNTING
NOT TO SCALE

CP-DA02	CORROSION PROTECTION DETAILS DEEP ANODE SYSTEMS	N.T.S.	DATE: 11-19-2019
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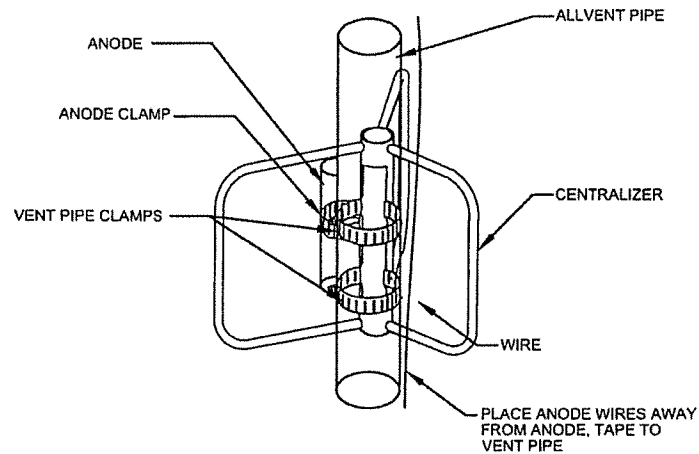
Addendum No. 2 - File No. 1-23



ANODE JUNCTION BOX

NOT TO SCALE

Addendum No. 2 - File No. 1-23

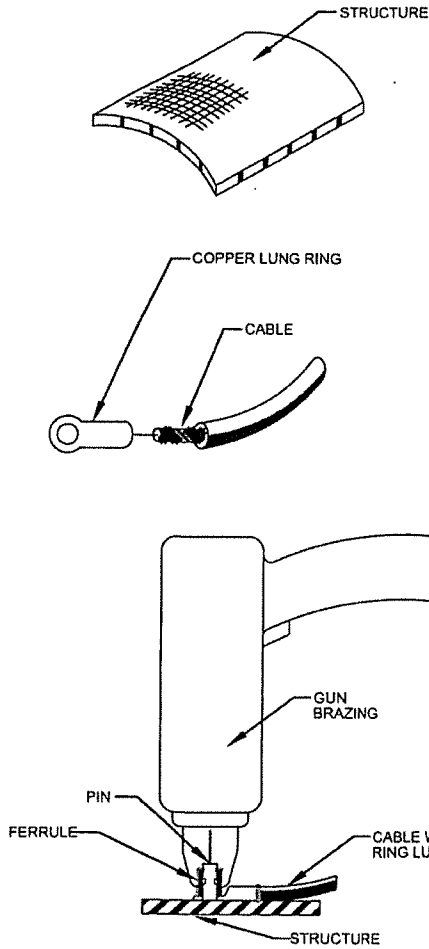


NOTE:
INSTALL TWO PER ANODE
CONNECT ON ANODE CRIMP
DO NOT TAPE WIRES OR ANODE

CENTRALIZER
NOT TO SCALE

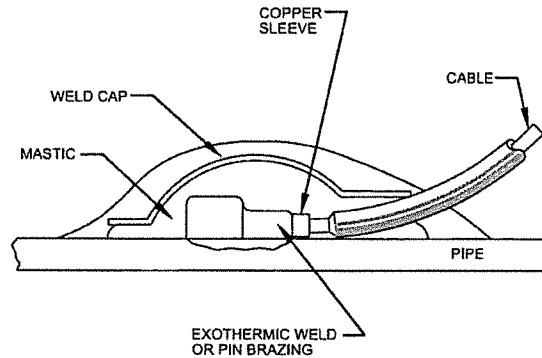
CP-DA04	CORROSION PROTECTION DETAILS DEEP ANODE SYSTEMS	N.T.S.	DATE: 11-19-2019
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Addendum No. 2 - File No. 1-23



NOTES:

1. DEGREASE AND CLEAN STRUCTURE TO BARE, BRIGHT METAL WITH MECHANICAL DEVICES.
2. STRIP WIRE INSULATION AND ATTACH FROM WIRE AND ATTACH A BAC M1 COMPRESSION TERMINAL OR APPROVED EQUAL.
3. LOAD THE BRAZING GUN WITH A DIRECT BRAZING PIN AND FERRULE. USE A THREADED TYPE CONNECTION FOR ABOVE-GROUND USE ONLY.
4. BRAZE THE CABLE TO THE PIPE. EXTRA MATERIAL REQUIRED FOR DI OR CI PIPE.
5. TEST BRAZE BY BREAKING OFF THE SHANK OF THE PLAIN PIN WITH A HAMMER.
6. COVER CONNECTION WITH MASTIC FILLED WELD CAP AND BITUMASTIC COATING 80% SOLIDS BY VOLUME OVER WELD CAP AND ALL EXPOSED METAL.
7. ALL WELDS SHALL BE A MINIMUM OF 6" APART.
8. ALLOW WELD COATING TO CURE PER MANUFACTURER'S RECOMMENDATIONS BEFORE BURIAL.



NOTE:

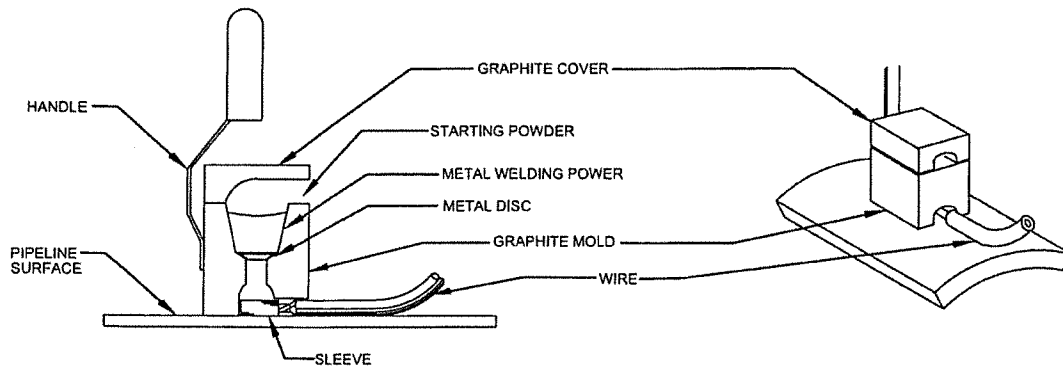
1. ALL BELOW GRADE OR SUBMERGED CONNECTIONS SHALL BE MADE WITH PIN BRAZING OR EXOTHERMIC WELDING, SEE DETAILS 8, 9, AND 10

PIN BRAZING

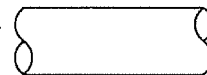
NOT TO SCALE

CP-EC01	CORROSION PROTECTION DETAILS BELOW GRADE ELECTRICAL CONNECTIONS	N.T.S.	DATE: 11-19-2019
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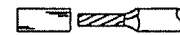
Addendum No. 2 - File No. 1-23



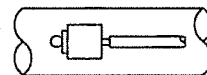
STEP 1. GRIND STRUCTURE CONNECTION AREA (3"x3") TO BARE SHINY METAL AND CLEAN.



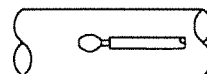
STEP 2. STRIP INSULATION FROM WIRE. ATTACH SLEEVE



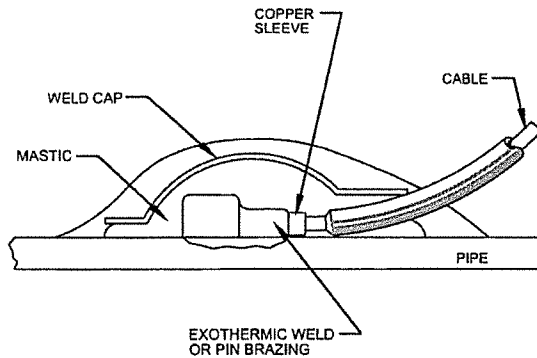
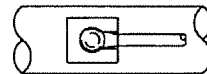
STEP 3. HOLD MOLD FIRMLY WITH OPENING AWAY FROM OPERATOR & IGNITE WITH FLINT GUN.



STEP 4. REMOVE SLAG FROM CONNECTION AND PEEN WELD FOR SOUNDNESS.



STEP 5. COVER CONNECTION AND EXPOSED STRUCTURE SURFACE WITH A WELD CAP AND BITUMINOUS COATING COMPOUND.



NOTES:

1. PROCEDURE SHOWN ABOVE IS TO BE USED AS A GENERAL GUIDE ONLY. CONSULT MANUFACTURER'S LITERATURE FOR SPECIFIC INSTALLATION INSTRUCTIONS. ALL WELDS SHALL BE A MINIMUM OF 6-INCHES APART. EXOTHERMIC WELDS ARE NOT PERMITTED ON STEEL WITH A THICKNESS LESS THAN 0.110 INCHES.
2. ALL BELOW GRADE OR SUBMERGED CONNECTIONS SHALL BE MADE WITH PIN BRAZING OR EXOTHERMIC WELDING, SEE DETAILS CP-EC01, CP-EC02, AND CP-EC03.

EXOTHERMIC WELD WIRE CONNECTION

NOT TO SCALE

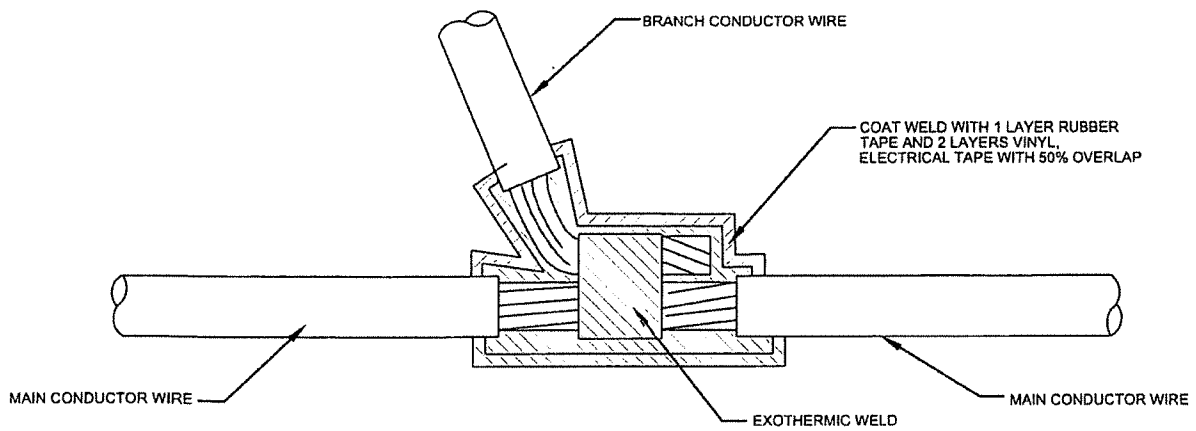
CP-EC02

CORROSION PROTECTION DETAILS
BELOW GRADE ELECTRICAL
CONNECTIONS

N.T.S.

DATE: 11-19-2019

Addendum No. 2 - File No. 1-23



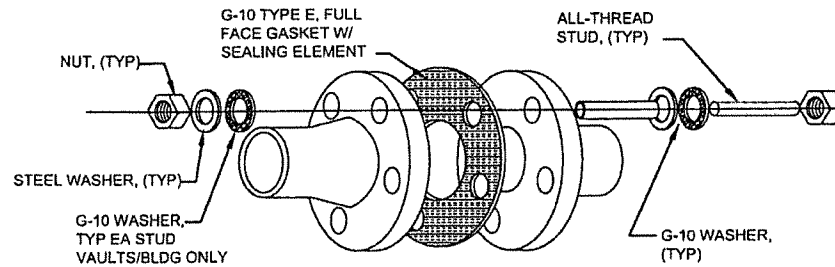
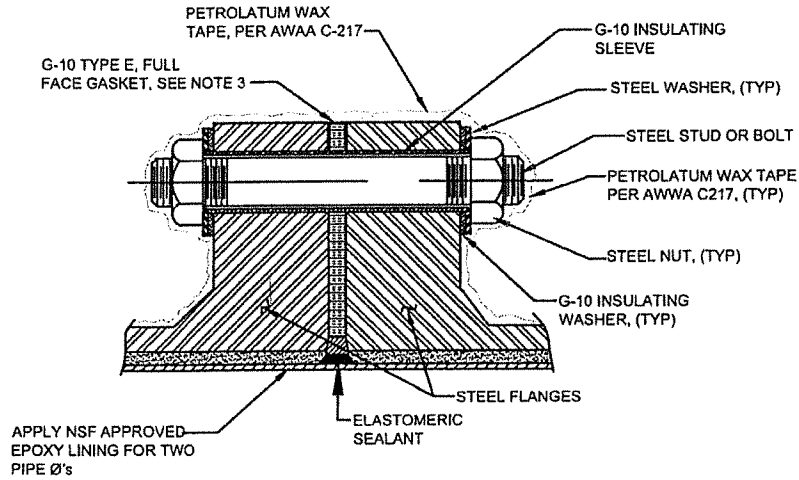
NOTES:

1. MAKE NO MECHANICAL CONNECTIONS BELOW GRADE.
2. ALL TAPE WRAP SHALL BE AT 50% OVERLAP
3. FOR POSITIVE WIRING, PLACE SPLICE IN 3M WYE EPOXY SPLICE KIT.
4. ALL BELOW GRADE OR SUBMERGED CONNECTIONS SHALL BE MADE WITH PIN BRAZING OR EXOTHERMIC WELDING, SEE DETAILS CP-EC01, CP-EC02, AND CP-EC03.

EXOTHERMIC WELD WIRE SPLICE
NOT TO SCALE

CP-EC03	CORROSION PROTECTION DETAILS BELOW GRADE ELECTRICAL CONNECTIONS	N.T.S.	DATE: 11-19-2019
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Addendum No. 2 - File No. 1-23



NOTES:

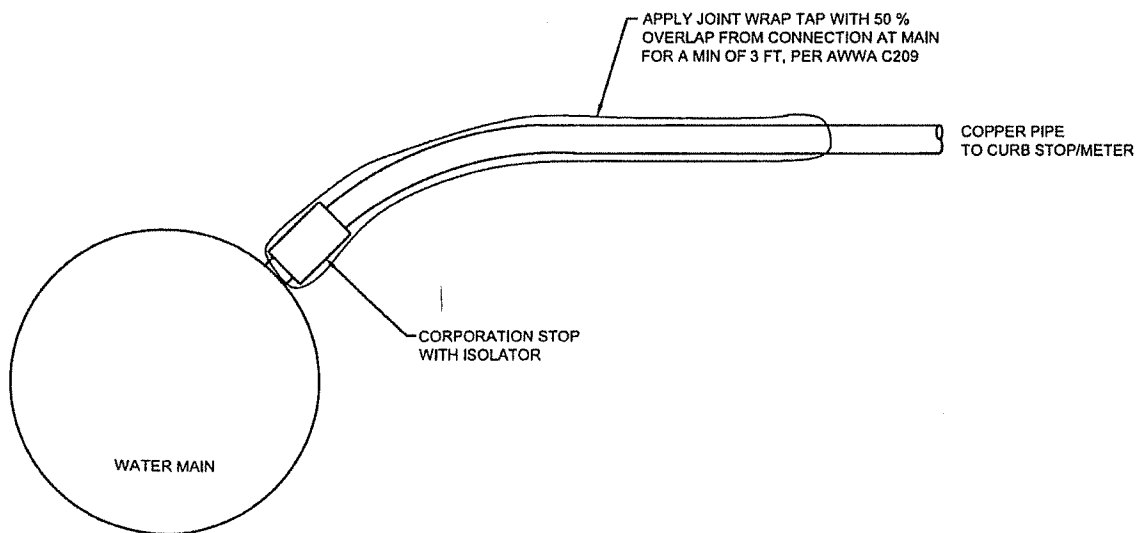
1. TEST INSULATING FLANGE BEFORE APPLYING WAX TAPE AND BURIAL.
2. EXTEND WAX TAPE 12" BEYOND FLANGE FACE OR 12" ONTO PIPE COATING, WHICHEVER IS GREATER.
3. EXTEND FULL FACE GASKET 1/8" BEYOND STEEL CAN ID. FILL REMAINING ANNULUS BETWEEN LINING W/ NSF APPROVED ELASTOMERIC SEALANT COMPATIBLE W/ LINING MATERIAL.
4. FOR DIRECT BURRY APPLICATIONS INSTALL SINGLE INSULATOR WASHER ON UNPROTECTED SIDE. IN VAULTS/BUILDINGS PLACE INSULATING WASHER ON BOTH SIDES.

INSULATED FLANGE JOINT

NOT TO SCALE

CP-I01	CORROSION PROTECTION DETAILS ISOLATION	N.T.S.	DATE: 11-19-2019
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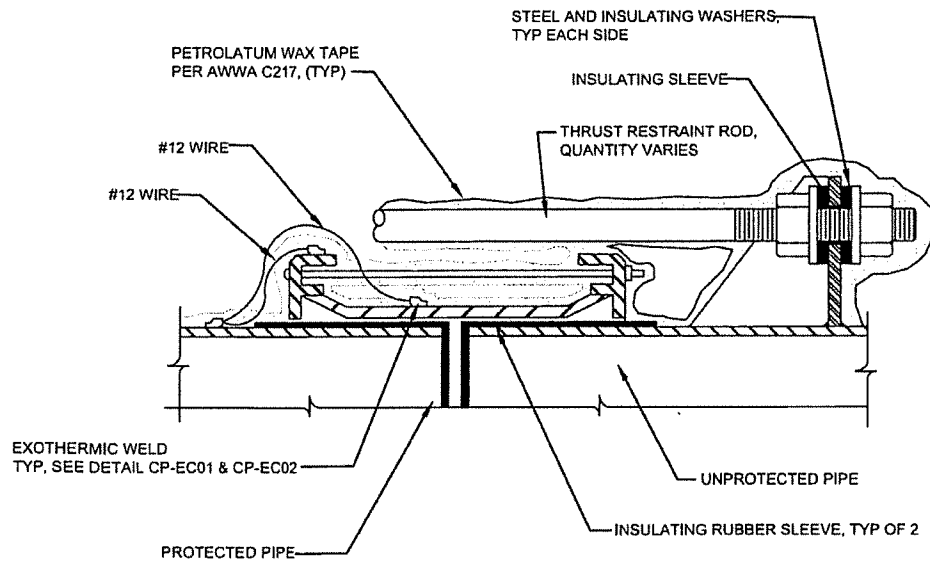
Addendum No. 2 - File No. 1-23



COPPER SERVICE LINE
NOT TO SCALE

CP-I02	CORROSION PROTECTION DETAILS ISOLATION	N.T.S.	DATE: 11-19-2019
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Addendum No. 2 - File No. 1-23



NOTES:

1. TEST INSULATING FLANGE BEFORE APPLYING WAX TAPE AND BURIAL.
2. EXTEND WAX TAPE 12" BEYOND FLANGE FACE OR 12' ONTO PIPE COATING, WHICHEVER IS GREATER.

INSULATED FLEXIBLE COUPLING
NOT TO SCALE

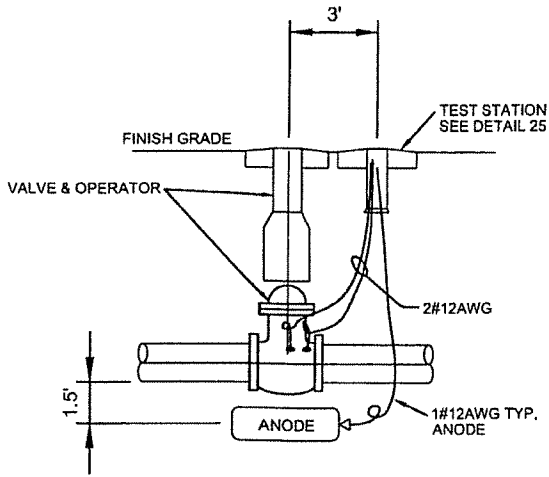
CP-I03

CORROSION PROTECTION DETAILS
ISOLATION

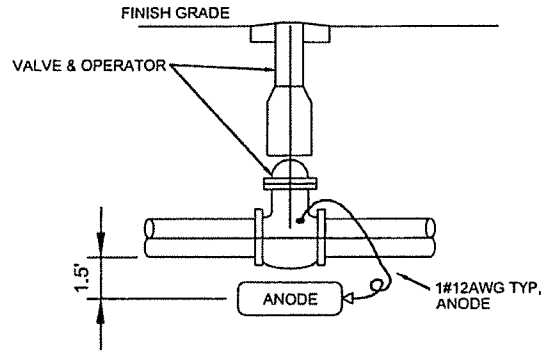
N.T.S.

DATE: 11-19-2019

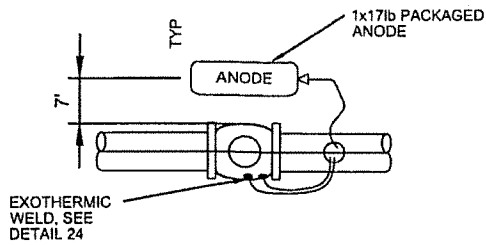
Addendum No. 2 - File No. 1-23



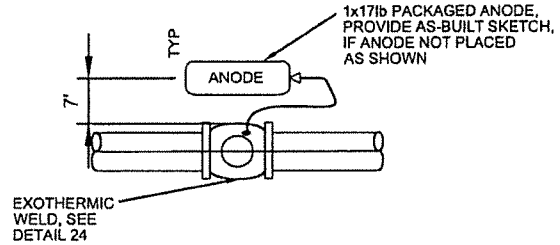
SIDE VIEW



SIDE VIEW



PLAN VIEW



PLAN VIEW

FITTING WITH TEST STATION

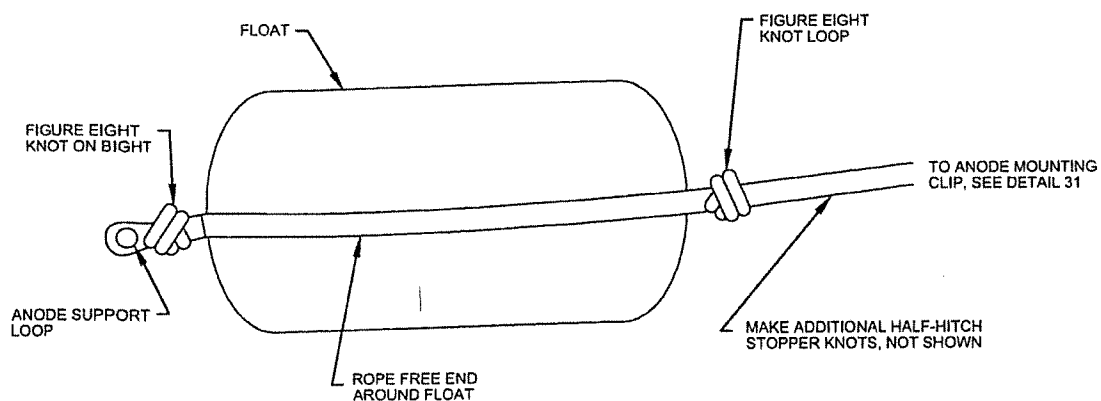
FITTING WITH DIRECT CONNECT ANODE

FITTING GALVANIC CP

NOT TO SCALE

CP-PV01	CORROSION PROTECTION DETAILS PVC C-900	N.T.S.	DATE: 11-19-2019
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Addendum No. 2 - File No. 1-23



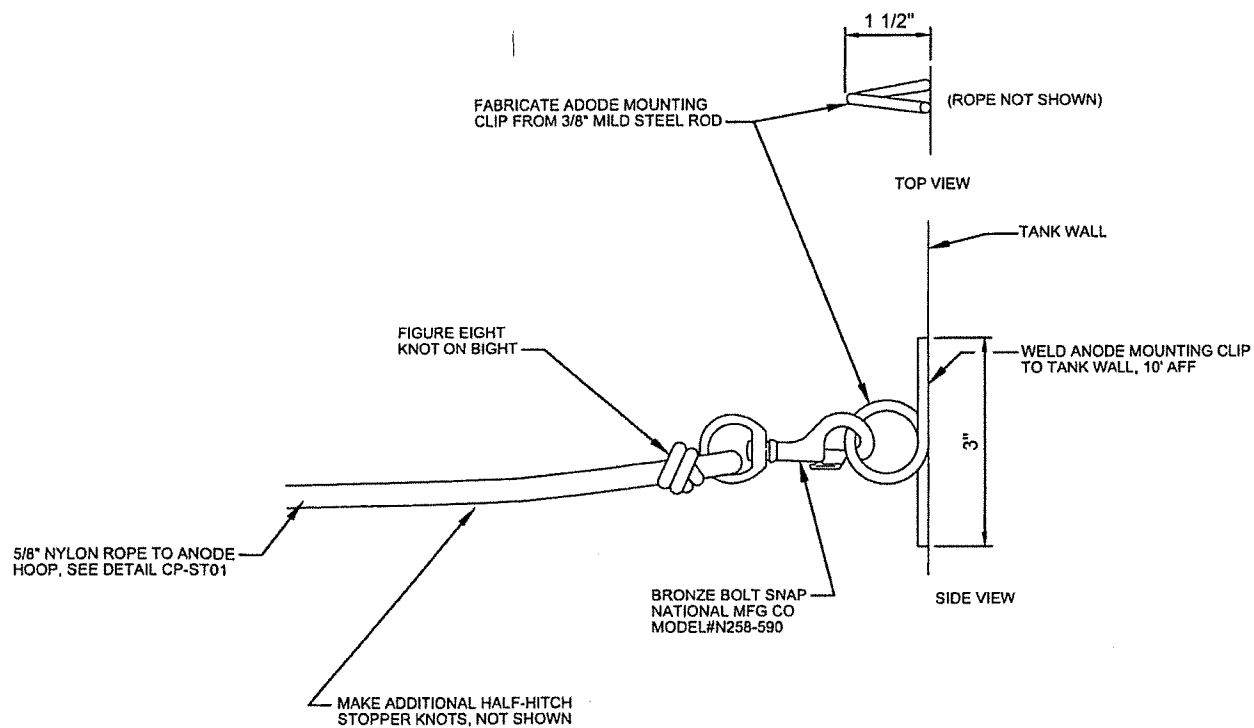
LEAVE ADAQUATE FREE ROPE AT KNOTS
AND LOCK WITH VINYL TAPE

ELIMINATE FLOAT FOR SMALL
DIAMETER TNKS AND INSTALL
ANODE SUPORT ROPE TIGHT.

ANODE SUPPORT ROPE AT HOOP
NOT TO SCALE

CP-ST01	CORROSION PROTECTION DETAILS INTERNAL STEEL TANK	N.T.S.	DATE: 11-19-2019
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Addendum No. 2 - File No. 1-23



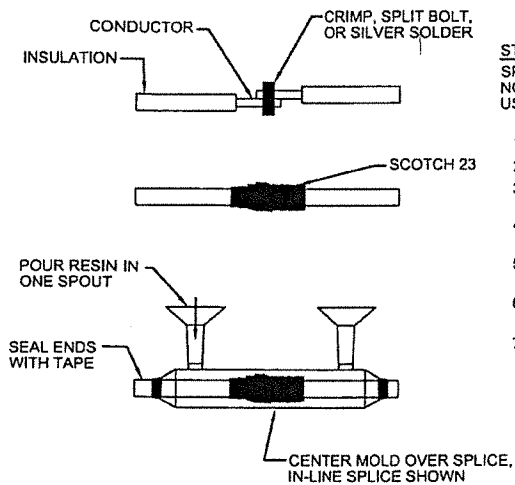
1 CLIP REQUIRED FOR EACH ROPE SUPPORT AND 1 REQUIRED AT CONDUIT FEED THRU INSTALL BEFORE TANK IS PAINTED

LEAVE ADEQUATE FREE ROPE AT KNOTS AND LOCK WITH VINYL TAPE

ANODE SUPPORT HOOKS NOT TO SCALE

CP-ST02	CORROSION PROTECTION DETAILS INTERNAL STEEL TANK	N.T.S.	DATE: 11-19-2019
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Addendum No. 2 - File No. 1-23



STEPS

SPLICE ANODE AND REFERENCE ELECTRODE CABLES, PER DETAIL. NOTE LOCATION OF ALL SPLICES ON "AS-BUILT" DRAWINGS. USE 3M 82-1 (90-B1 FOR WYE SPLICE) SPLICE KIT OR EQUIVILANT.

1. STRIP INSULATION BACK FROM ANODE WIRE.
2. SPLICE WIRES TOGETHER WITH CRIMP, SPLIT BOLT, OR SOLDER.
3. PEEL PROTECTIVE LAYER FROM "Scotch 23" AND APPLY LAYER AT 50% OVERLAP OVER BARE CONDUCTORS AND CRIMP
4. FIRMLY SNAP MOLD OVER CABLE CENTERED OVER SPLICE, TAPE ENDS TO SEAL AROUND CABLE.
5. INSTALL SPOUTS, MIX RESIN PER SUPPLIED INSTRUCTIONS, FILL MOLD THROUGH ONE SPOUT UNTIL BOTH SPOUTS FILL.
6. DO NOT ALLOW VOIDS TO FORM. SPLICE MUST NOT TOUCH MOLD AND KEEP MOLD LEVEL UNTIL RESIN CURES.
7. IN-LINE SPLICE SHOWN, FOR ADDITIONAL CONDUCTOR, USE WYE SPLICE.

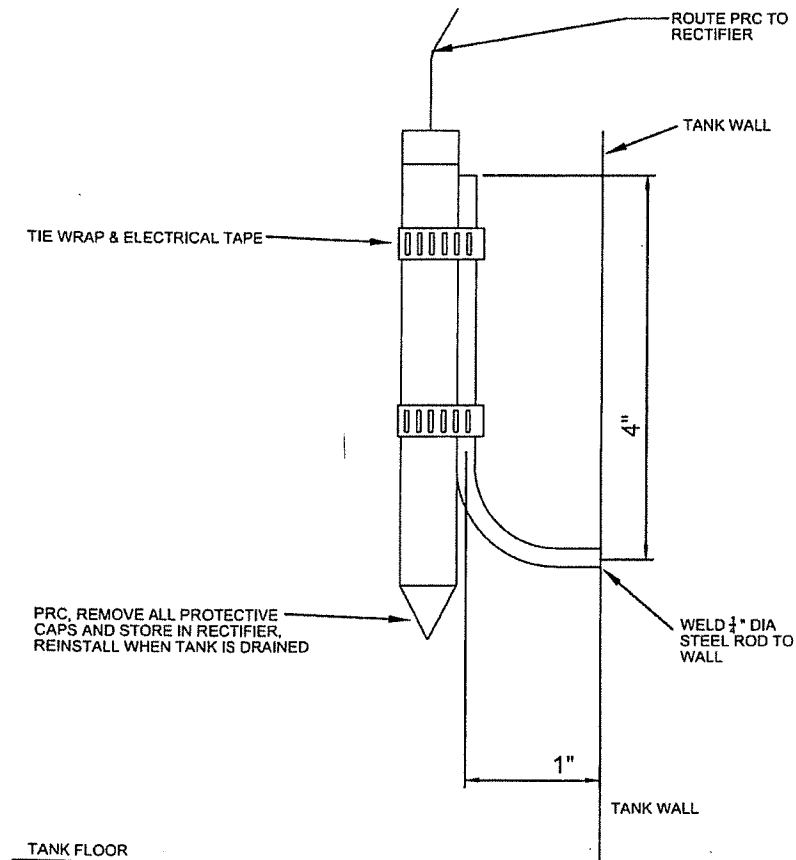
ANODE CABLE SPLICE

CONDUCTOR SPLICING

NOT TO SCALE

CP-ST03	CORROSION PROTECTION DETAILS INTERNAL STEEL TANK	N.T.S.	DATE: 11-19-2019
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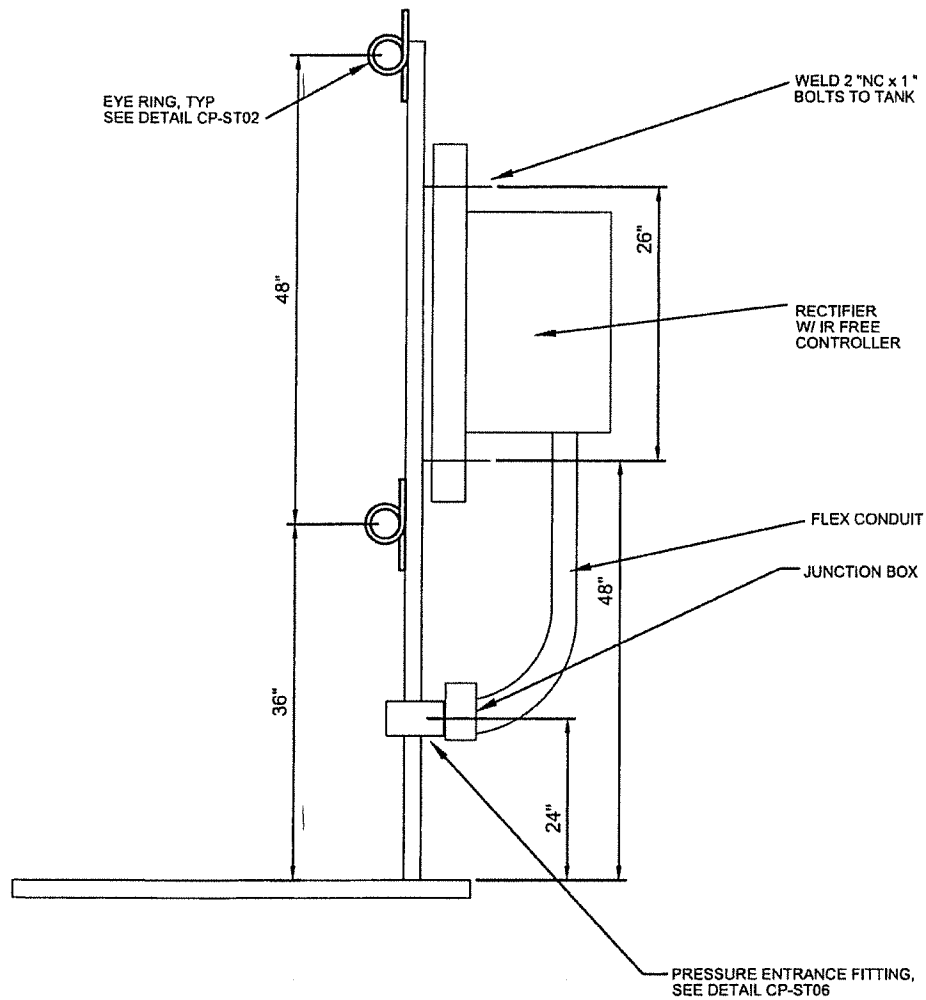
Addendum No. 2 - File No. 1-23



REFERENCE ELECTRODE MOUNTING
NOT TO SCALE

CP-ST04	CORROSION PROTECTION DETAILS INTERNAL STEEL TANK	N.T.S.	DATE: 11-19-2019
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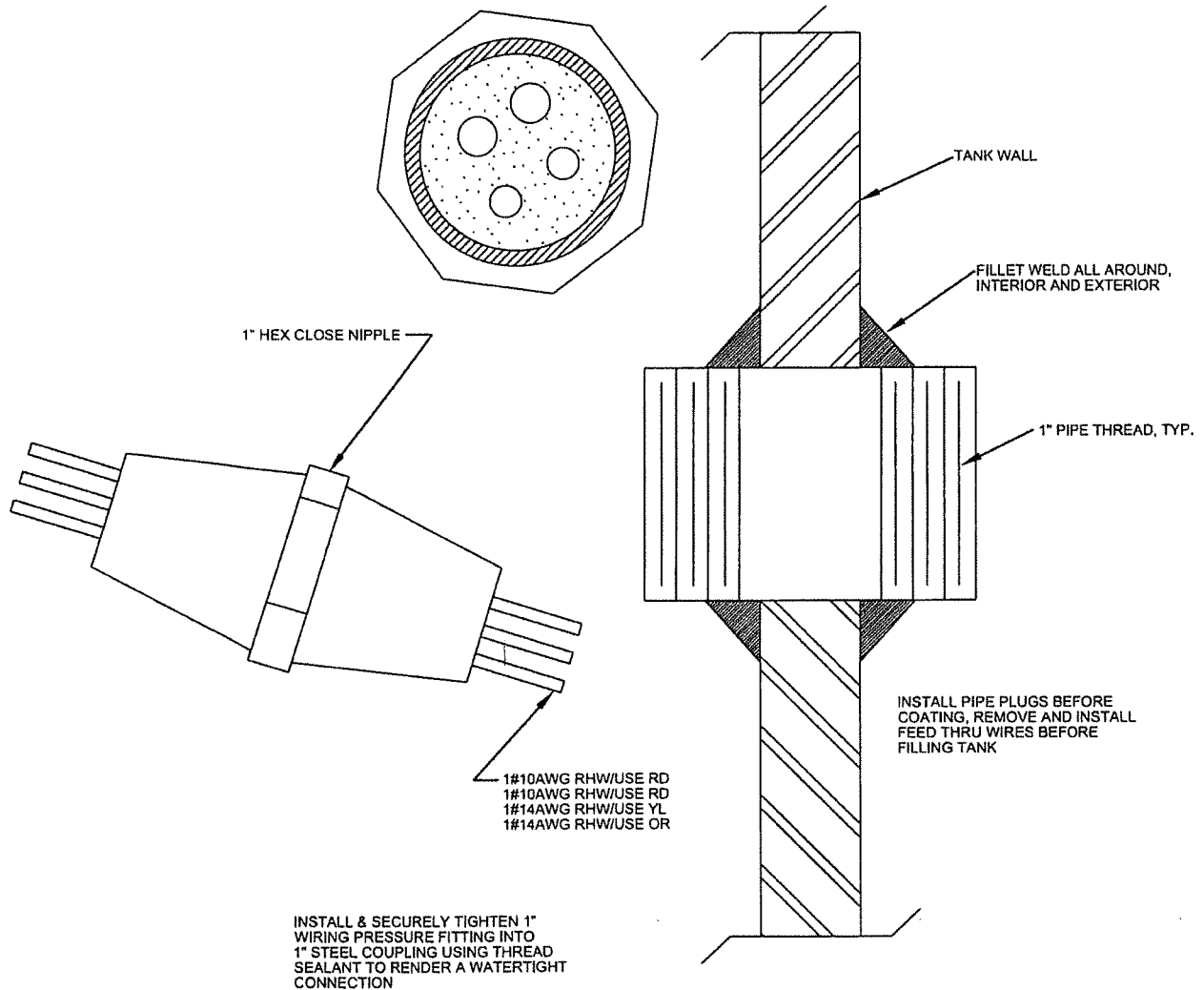
Addendum No. 2 - File No. 1-23



RECTIFIER/JUNCTION BOX
NOT TO SCALE

CP-ST05	CORROSION PROTECTION DETAILS INTERNAL STEEL TANK	N.T.S.	DATE: 11-19-2019
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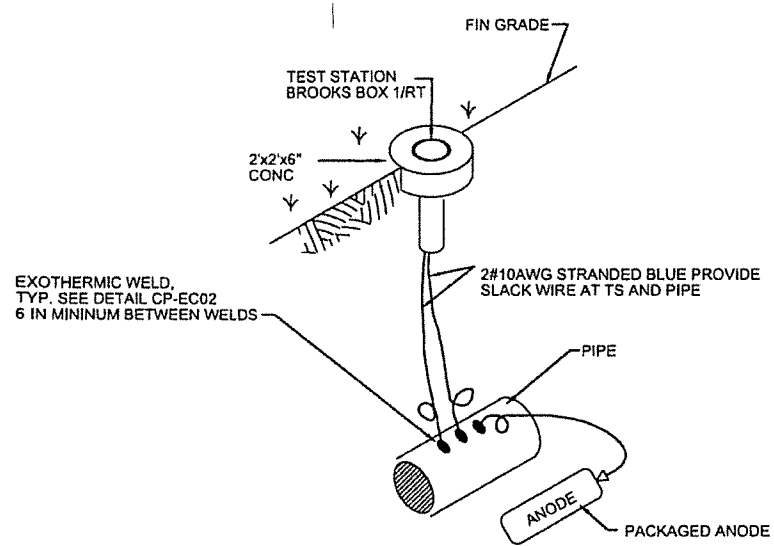
Addendum No. 2 - File No. 1-23



PRESSURE ENTRANCE FITTING

NOT TO SCALE

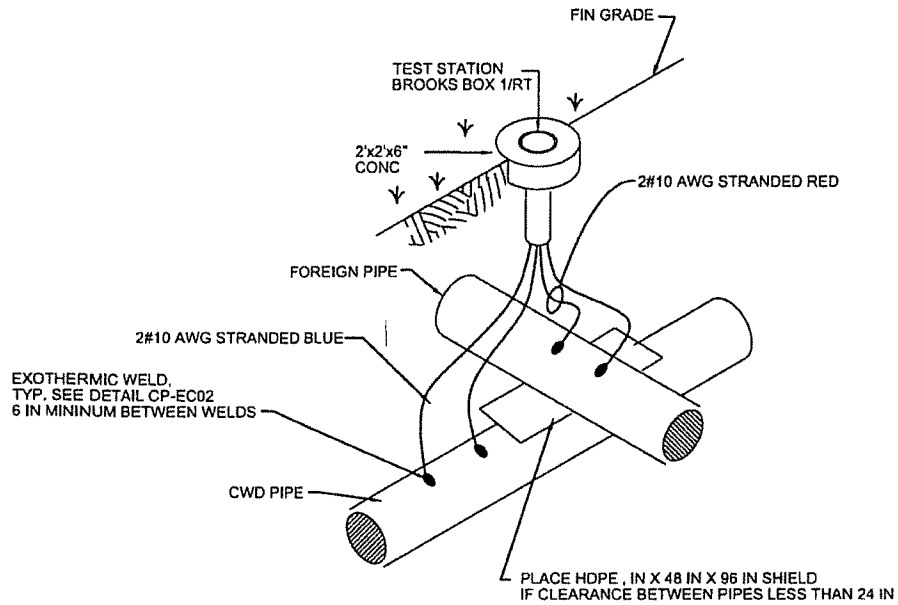
Addendum No. 2 - File No. 1-23



GALVANIC TEST STATION
NOT TO SCALE

CP-TS01	CORROSION PROTECTION DETAILS TEST STATION	N.T.S.	DATE: 11-19-2019
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Addendum No. 2 - File No. 1-23



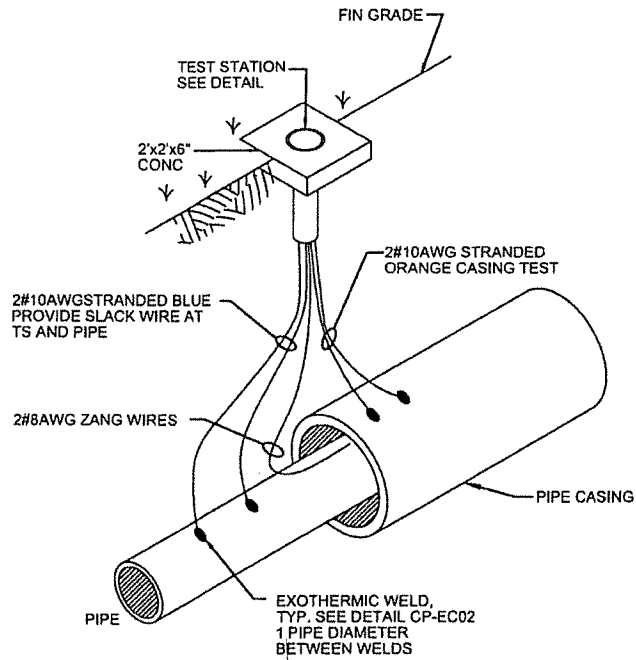
NOTES:

1. MAKE CONNECTIONS TO FOREIGN PIPE ONLY WITH OWNERS APPROVAL

TEST STATION AT FOREIGN PIPELINE CROSSING
NOT TO SCALE

CP-TS02	CORROSION PROTECTION DETAILS TEST STATION	N.T.S.	DATE: 11-19-2019
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Addendum No. 2 - File No. 1-23



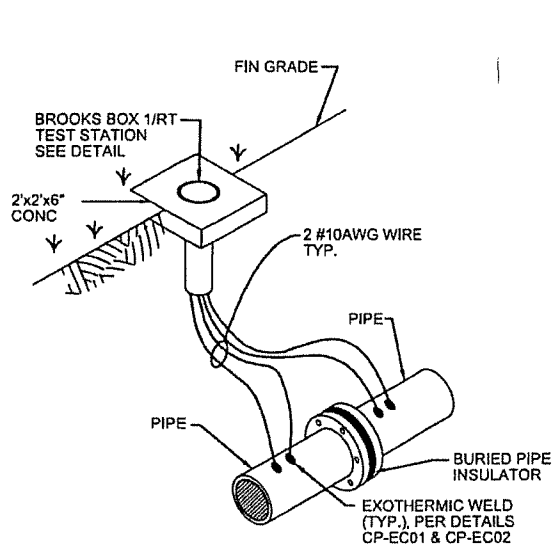
NOTES:

1. CASING/TUNNEL SHALL BE STRAIGHT, WITH ADEQUATE CLEARANCE TO PREVENT SHORTS TO PIPE. PIPE SHALL BE INSTALLED WITH APPROVED CASING ISOLATORS. INSTALL TRACKS FOR CASING ISOLATORS IF CASING IS NOT SMOOTH. TEST CASING/PIPE ISOLATION BEFORE BACKFILL. ANY SHORTS WILL REQUIRE REPAIR OR REPLACEMENT AT CONTRACTORS EXPENSE. SEAL CASING ENDS TO PREVENT WATER INTRUSION. ZANG WIRES ARE USED FOR FOR FUTURE TESTING OR BONDING.

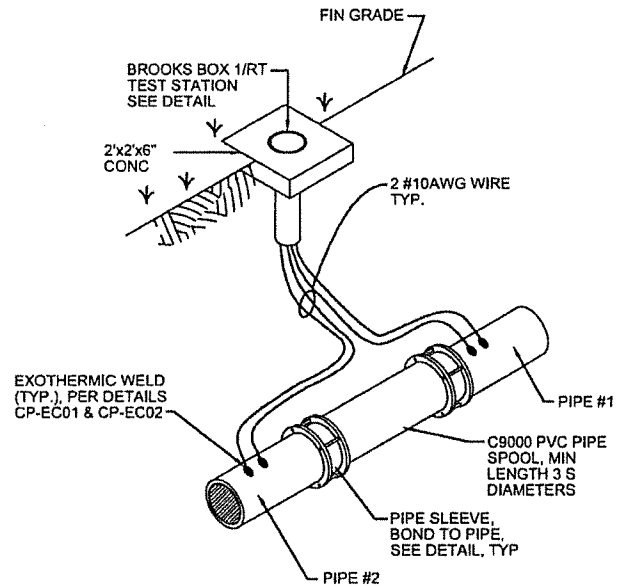
TEST STATION PIPE CASING
NOT TO SCALE

CP-TS03	CORROSION PROTECTION DETAILS TEST STATION	N.T.S.	DATE: 11-19-2019
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Addendum No. 2 - File No. 1-23



TEST STATION AT
PIPELINE INSULATOR

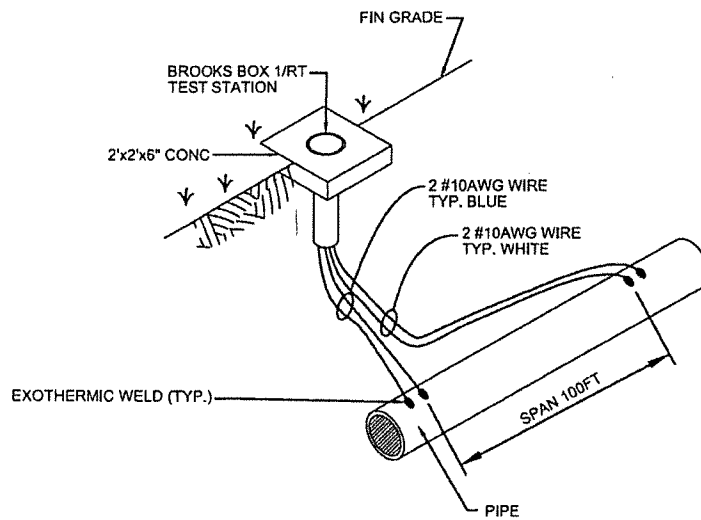


TEST STATION WITH
PVC PIPE SPOOL

ISOLATION TEST STATION
NOT TO SCALE

CP-TS04	CORROSION PROTECTION DETAILS TEST STATION	N.T.S.	DATE: 11-19-2019
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Addendum No. 2 - File No. 1-23



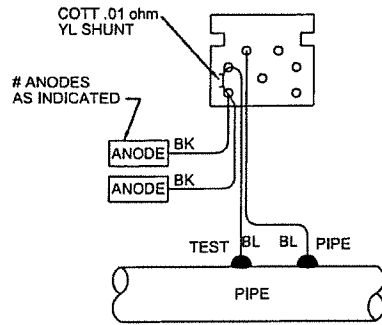
NOTE:

PIPE JOINTS MUST BE WELDED OR HAVE JOINT BONDS
LABEL IN TEST STATION AS "IR DROP TS" WITH SPAN PIPE INFORMATION

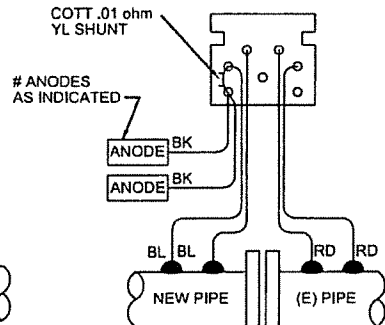
IR DROP TEST STATION
NOT TO SCALE

CP-TS05	CORROSION PROTECTION DETAILS TEST STATION	N.T.S.	DATE: 11-19-2019
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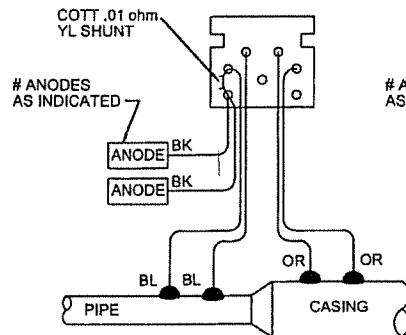
Addendum No. 2 - File No. 1-23



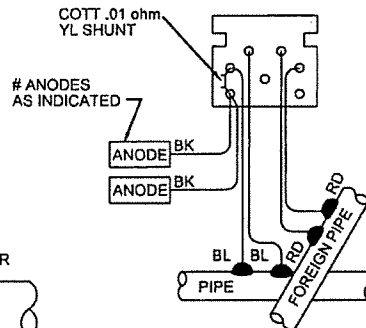
A-ANODE TS



B-INSULATOR



C-CASING TS



D-FOREIGN LINE

COLOR CODE:

PROVIDE 18" SLACK WIRE IN TS

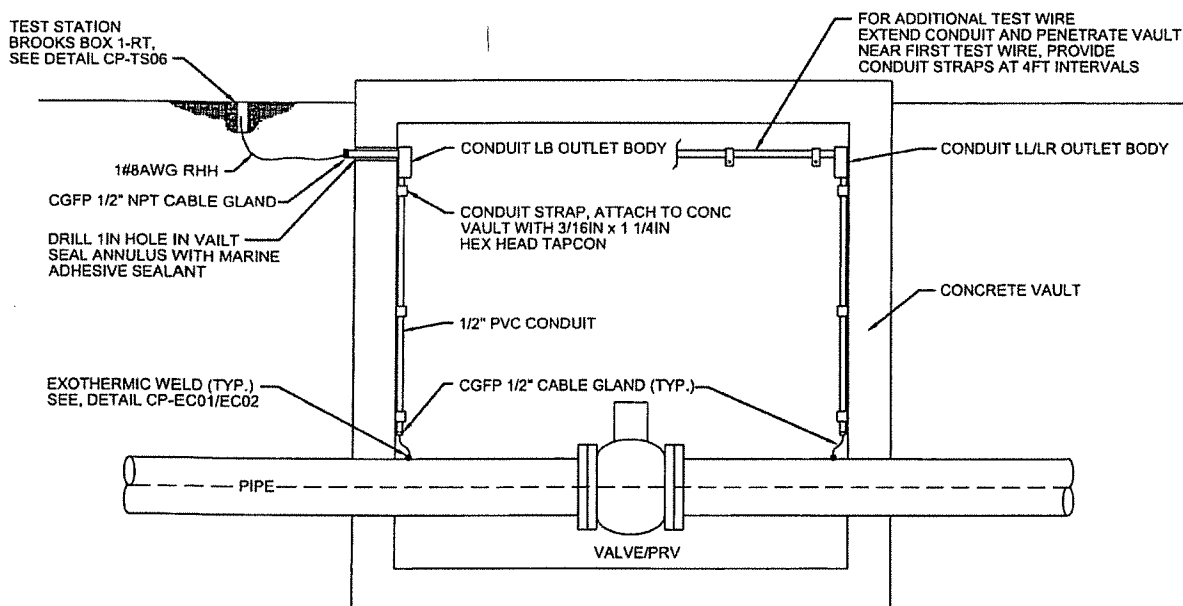
1. GALVANIC ANODES: BK = BLACK
2. PIPELINE TEST WIRES: BL = BLUE
3. CASING TEST WIRES: OR = ORANGE
4. FOREIGN PIPELINES: RD = RED
5. INSULATED JOINTS: AS SHOWN

TEST STATION CIRCUIT BOARD

NOT TO SCALE

CP-TS06	CORROSION PROTECTION DETAILS TEST STATION	N.T.S.	DATE: 11-19-2019
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Addendum No. 2 - File No. 1-23



NOTE:

FOR VAULTS WITH HAZARDOUS AREA CLASSIFICATION,
ALL FITTINGS MUST BE GALVANIZED RIGID CONDUIT
AND ALL FITTINGS RATED "EXPLOSION PROOF"

FOR INSULATED JOINTS PROVIDE ADDITIONAL #8AWG RHH
WIRE AND CONDUIT.

PROVIDE CONDUIT SUPPORT WITHIN 6IN OF FITTINGS
AND AT 4FT MIN INTERVALS, ROUTE CLEAR OF ACCESS
HATCHES AND VALVE OPERATORS.

VAULT TEST WIRES NOT TO SCALE

CP-TS07	CORROSION PROTECTION DETAILS TEST STATION	N.T.S.	DATE: 01-02-2020
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